Nurses’ Job Satisfaction and Patient Falls

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Purpose The growing concern about the low job satisfaction among nurses and the achievement of positive patient outcomes are critical healthcare issues. The purpose of this descriptive correlational study was to determine the relationship between nurses’ job satisfaction and patient fall rate on adult medical and surgical units.

Methods Secondary data from a nurses’ job satisfaction survey at a large not-for-profit acute care hospital on the East coast was used. The National Database of Nursing Quality Indicators–Adapted Index of Work Satisfaction (NDNQI–AIWS) was used to measure nurses’ job satisfaction. The sample included 161 nurses from 12 adult acute medical and surgical units. The study used retrospective data collected by the Department of Nursing on patient fall rate. Pearson’s correlation coefficient was used to determine the relationship between nurse job satisfaction and patient fall rate. In addition, exploratory descriptive analysis was conducted by type of unit (i.e., medical or surgical).

Results and Conclusion No significant relationship was found between overall nurses’ job satisfaction and patient fall rate. MD–RN interactions ($r = .65$) and decision-making ($r = .57$) were the job satisfaction subscales that showed a significant positive correlation with patient fall rate ($p < .05$). Recommendations for future research are provided. [Asian Nursing Research 2007;1(2):83–94]

Key Words job satisfaction, patient fall rate

INTRODUCTION

Job satisfaction among nurses is less than satisfactory despite well-known factors such as pay, recognition, autonomy, and organizational commitment. Aiken, Clarke, and Sloane (2002) reported that more than 40% of nurses working in United States (US) hospitals were dissatisfied with their jobs. The low job satisfaction among nurses and the failure of hospitals and other institutions to implement interventions to improve job satisfaction contribute to the current nursing shortage problem (Garon & Ringl, 2004). As of 2002, the Joint Commission on Accreditation of Healthcare Organizations (JCAHO) has set an expectation that healthcare organizations collect and analyze data on staff satisfaction and other human resource indicators and link them to clinical outcomes (JCAHO, 2002). The purpose of this descriptive

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correlational study was to determine the relationship between nurses’ job satisfaction and patient fall rate in adult medical and surgical units in an acute care setting.

The low job satisfaction among nurses and the achievement of positive outcome such as a low patient fall rate are issues that affect both quality and cost of patient care (Garon & Ringl, 2004; Neisner & Raymond, 2002). Although the cost of nurse job dissatisfaction has not been directly measured, the high cost of turnover rate has been well established (Garon & Ringl).

Poor patient outcome such as an increased patient fall rate also increases the cost of healthcare (Neisner & Raymond, 2002). Moreover, poor patient outcomes increase the length of stay, increase resource utilization, and increase the cost of treatment (Fleck & Forrester, 2001).

Organizations such as the American Nurses Association (ANA) and JCAHO have established quality indicators for healthcare institutions to use as monitoring standards. The ANA proposed that job satisfaction be measured and established as one nurse-sensitive indicator to reflect nursing’s contribution to the quality of patient care (ANA, 1995). Both organizations recognized staff satisfaction as a human resources quality indicator. In addition, both organizations listed patient fall rate as an outcome indicator.

Only two studies explicating the relationship between job satisfaction and patient outcomes (Stratton & Sovie, 2002; Tumulty, 1990) were found in the literature. Tumulty looked at the relationship between head nurse satisfaction and unit outcomes, namely RN retention, patient satisfaction, nosocomial infection, patient falls, and skin integrity. Stratton and Sovie investigated the impact of hospital nurse satisfaction on patient outcomes such as nosocomial pressure ulcer, fall rate, serious injury rate related to falls, nosocomial urinary tract infection rate, and elements of patient satisfaction. Both studies used aggregate data from multi-hospital settings. No studies were done at the unit level. This present study contributes to the body of literature by exploring the relationship between the variables of focus at the unit level.

**METHODS**

This study used secondary data from a study of nurses’ job satisfaction. A descriptive, correlational design was used to answer the research question, “What is the relationship between nurses’ job satisfaction and patient fall rate in adult medical and surgical units?” Secondary data from a nurse satisfaction survey conducted at a large metropolitan hospital on the East coast were used for the variable of nurse satisfaction.

Patient fall rate in the last quarter of the year was obtained from the Department of Nursing records. Nurse satisfaction was considered an antecedent of patient outcomes. Therefore, patient fall rate data obtained after the nurse satisfaction survey were used. Demographic data of the nursing staff who worked at the time of the nurse satisfaction survey and the fall rate data collection were provided by the Department of Nursing. These data were used to describe the nurses in terms of age, gender, race/ethnicity, number of years worked in the hospital, degree in nursing, hours worked, and job title. The Department of Nursing provided data that did not identify individual nurses or patients.

The setting is a 1171-bed not-for-profit acute care hospital located in a large metropolitan city on the East coast. The hospital provides a broad range of primary, secondary, and tertiary clinical services. The hospital is a member of the National Database of Nursing Quality Indicators (NDNQI) that conducted the nurse satisfaction survey; all patient care units participated in the nurse satisfaction survey.

For the purpose of this study, only adult inpatient medical and surgical units were included to control for variations related to types of patients, patient acuity, and staffing pattern. Some studies (Tumulty, 1990; Whitman, Kim, Davidson, Wolf, & Wang, 2002) have recommended cohorting patients for outcomes analysis. The average nurse–patient ratio for medical and surgical units was one nurse to 5–6 patients. Not included in the study were the critical care, step-down, maternal–newborn, pediatrics, perioperative services, rehabilitation, emergency services, and ambulatory areas. The definitions of a medical unit and
a surgical unit were derived from NDNQI (2003). Medical units were defined as acute care areas that provided general medicine, cardiology/telemetry, neurology, oncology, and nephrology services. Surgical units were defined as acute care areas that provided general surgery, cardiac surgery, gynecology, neurosurgery, orthopedics, and transplant services. Some areas provided combined medical and surgical care to patients. Medical and surgical units that were included in the study were those with five or more nurses who participated in the nursing satisfaction survey, and those that had submitted patient fall rate data to NDNQI. Based on the two criteria, 12 adult medical and surgical units were included in the study. Only one surgical unit was not included in this study. This surgical unit had only four respondents. The NDNQI did not report any nurse job satisfaction score for this unit in order to maintain staff confidentiality.

A convenience sample of 161 RNs out of 375 RNs working in 12 medical and surgical units were included in the study. Although this study used secondary data that included all adult medical and surgical units with available nurse job satisfaction and patient fall data, power analysis was done to determine minimum sample size. A power of .80 was used in this study with a level of significance ($\alpha = .05$). When the effect size is unknown, conventional effect size value is calculated using the test of correlation formula (Cohen & Lea, 2004). Using the formula, with a sample size of 161, an effect size of .20 was determined.

Inclusion and exclusion criteria for the sample of RNs were established by NDNQI (2003). Full-time, part-time or per diem RNs who spent at least 50% of their time on direct patient care, and who had been employed a minimum of 3 months in the unit were eligible to participate. Agency or contract nurses were not eligible to participate.

All falls were included whether they resulted from physiologic reasons such as fainting or from environmental reasons such as a slippery floor. In addition, all falls were included whether they resulted in patient injury. Incidents where a patient was assisted to the floor were included. Multiple falls by the same patient were considered separate events. The nurse completed the Patient Falls Monthly Report form when a patient fell. The clinical nurse manager reviewed the completed form for accuracy before it was submitted to the nursing director of the Performance Improvement Department. A staff member in the Performance Improvement Department determined the patient fall rate and submitted the data to the NDNQI. Patient fall rate is operationally defined as the number of patient falls that occur in a designated nursing unit divided by the number of patient days in the same unit for the same period multiplied by 1000.

**NDNQI–AIWS instrument**

The NDNQI–Adapted Index of Work Satisfaction (AIWS) instrument was used to measure the level of nurses’ job satisfaction. The NDNQI–AIWS was developed by NDNQI as Part Two of a four-part RN Satisfaction Survey. The NDNQI–AIWS was based on the Index of Work Satisfaction (IWS) originally developed by Piedmonte and Stamps in 1985 (Stamps, 1997). The NDNQI–AIWS consists of 44 items with seven subscales. The seven subscales measured level of nurses’ job satisfaction with task (6 items), RN–RN interactions (6 items), RN–MD interactions (6 items), decision-making (7 items), autonomy (7 items), professional status (6 items), and pay (6 items). Each of the 44 items was scored using a 6-point Likert response scale: strongly agree, agree, tend to agree, tend to disagree, disagree, and strongly disagree. Items were both negatively and positively worded. NDNQI had devised a scoring process. An average for each subscale was calculated after each item had been scored. Taking the average of each subscale, the average score was then converted into a T-score. A modified standardized T-score transformation was used to facilitate interpretation and comparison across measures. The T-score transformation was based on the response continuum. The midpoint was 3.5 and was represented by the score 50 with a standard deviation of 10. T-scores $< 40$ were interpreted as low satisfaction, between 40 and 60 as moderate satisfaction, and $> 60$ as high satisfaction. The responses were written in the aggregate form.

Preliminary psychometric evaluation of the NDNQI–AIWS was conducted by Taunton (2001).
A factor analysis was done to assess validity. However, several items did not load on any factor. Thus, these items were deleted. A study by Taunton, Butcher, and Bott (2001) showed that modification of the NDNQI–AIWS resulted in a stable factor structure similar to Stamps’ IWS. Miller, Boyle, and Taunton (2002) conducted a study confirming the dimensionality of data collected and the reliability of the scale.

Taunton (2001) found that Cronbach’s alpha was .71 to .87 for the five subscales: task, RN–MD interactions, organizational policies, autonomy, and pay. RN–RN interactions had a Cronbach’s alpha of .66 and professional status a Cronbach’s alpha of .49. Some items were deleted and modified based on reliability and validity assessments. Taunton, Butcher, and Bott (2001) conducted a second reliability assessment. For the second reliability assessment, Cronbach’s alpha was .74 to .91 for all subscales except professional status, which had a Cronbach’s alpha of .63.

For this study, reliability assessment conducted by the investigators on the NDNQI–AIWS total satisfaction score yielded a Cronbach’s alpha of .86. Reliability assessment of subscales conducted by NDNQI in the 2003 Nurse Satisfaction survey showed a Cronbach’s alpha of .81 for autonomy and professional status. Task, RN–RN interactions, and decision-making had a Cronbach’s alpha of .85, pay had a Cronbach’s alpha of .88, and RN–MD interactions had a Cronbach’s alpha of .91.

**Patient falls monthly report form**

Patient fall rate was derived from reports collected by the Department of Nursing on each acute care unit in the hospital. Each unit completed the Patient Falls Monthly Report form for every patient fall incident. The Performance Improvement Department of the Department of Nursing counted the total number of incidents and determined the patient fall rate using the formula stated in the operational definition. The mean patient fall rate for the last quarter of the year was derived by adding the fall rate for the months of October, November and December, and dividing the numbers by three. This was the patient fall rate data submitted to the NDNQI and the data used in this study.

The nursing staff completed the Patient Falls Monthly Report form whenever a patient fell. No reliability or validity of the Patient Falls Monthly Report form has been established, and thus this form is subject to under-reporting, which may be common practice. Weingart et al. (2005) studied adverse event reporting in a Boston teaching hospital. Medical record review and patient interview either during hospitalization or after revealed that 55% of adverse events and 4% of near misses were documented in the medical record but not reported using the hospital incident reporting system.

An informal survey of six nurse managers and a geriatric nurse practitioner in the study setting was conducted. These nurse leaders stated that incidents of patient falls were well reported. Two of the leaders suggested 100% reporting of patient falls. In contrast, these leaders stated that the incidents of patient pressure ulcers were less frequently reported. One leader suggested 50–60% reporting of patient pressure ulcers. This reporting practice percentage was similar to the findings of Weingart et al. (2005).

In spite of the lack of reliability and validity studies on the Patient Falls Monthly Report form and reporting practices, the authors assumed that the reporting practice within the study setting were uniform and consistent. This assumption was based on the orientation of newly hired RNs, the nursing reporting practice, and the informal survey of nurse leaders conducted in the study setting. All newly hired RNs undergo centralized orientation. During centralized orientation, newly hired RNs were instructed that reporting of adverse events, including patient falls, is important. After centralized orientation, newly hired RNs undergo unit-based orientation. In the specific units where newly hired RNs were assigned, the importance of adverse event reporting was reiterated. In addition, newly hired RNs were taught how to complete the form related to reporting of patient falls and how to document the incident in the medical record. Newly hired RNs were also taught the reporting procedures for adverse events. The reporting procedure includes reporting patient falls to the physician, the nurse manager, and the RN who will take care of the patient the next shift.
A non-punitive approach to reporting was observed. Nurse managers emphasized to the staff that the focus was patient safety.

Approval for the study was obtained from the institutional review board. Survey packets were delivered to the RNs either through the nurse manager or through the nursing director’s office. Survey packets contained a letter from the director of the NDNQI RN satisfaction survey. The letter explained the purpose of the survey, the approximate time of survey completion, the protection of confidentiality, and the voluntary nature of the survey. A letter from the Vice President of Nursing was included in the survey packet. The letter stated the hospital’s support of the NDNQI RN satisfaction survey, the time line for the survey, and the RNs’ eligibility to participate in a raffle drawing of $50 American Express gift certificates. In addition, the letter contained instructions to seal the envelope after completion of the survey and to place the sealed envelope in specially marked boxes located in the nursing unit and the nursing director’s office. Return of the completed survey constituted consent. Survey packets included the NDNQI questionnaire, a pencil, a list containing the hospital and unit codes, and the raffle paper.

Each nursing unit routinely collected data on patient falls. The RN completed the Patient Falls Monthly Report form every time a patient fell. The completed Patient Falls Monthly Report form was submitted to the Department of Nursing. The Department of Nursing determined the patient fall rate. The hospital submitted patient fall rate data to the NDNQI.

Recruitment of subjects
The study subjects included 161 nurses from 12 medical and surgical units. Only medical and surgical units with five or more participants were included. All nurses were recruited based on eligibility criteria as described in the sample. There were no attrition issues in this study.

Demographic data
The NDNQI RN Satisfaction Survey, Part IV, contained demographic questions regarding age, gender, race/ethnicity, years worked as an RN, years worked in the current nursing unit, highest level of nursing education, highest level of education other than nursing, certification, role as a nurse, and hours worked (full-time or part-time). However, data derived from Part IV of the NDNQI RN Satisfaction Survey was not used for this study because only aggregate hospital data were provided by NDNQI. The Department of Nursing provided nurse level data that included age, gender, race/ethnicity, number of years worked in the hospital, degree in nursing, hours worked, and job title for all the RNs qualified to participate in the survey (n = 375).

Descriptive statistics were used to summarize demographic data. Excel was used to enter, code, and analyze data. The study used secondary data provided by a major New York City hospital. Only medical and surgical units with NDNQI–AIWS subscale scores that were complete were included in the study. In addition, only medical and surgical units with patient fall rate data were included in the study. Bivariate correlation analysis using Pearson’s correlation coefficient was used to determine the relationship between variables. In addition, exploratory descriptive analysis was conducted by unit and by type of unit (i.e., medical or surgical).

RESULTS
The convenience sample for this study was drawn from all the adult medical and surgical units at a large not-for-profit acute care hospital on the East coast. Thirteen adult medical and surgical units were included in the study. However, one surgical unit was not included in the data analysis because only four RNs from this unit participated in the study. The NDNQI did not report nurse satisfaction data for units with four or fewer respondents. Out of the 375 medical and surgical RNs who were eligible to participate in the study, 161 RNs did so, for a response rate of 44%.

The hospital provided nurse level data on age, gender, race/ethnicity, number of years worked in the hospital, degree in nursing, hours worked, and
Job title for the 375 medical and surgical RNs who met the inclusion criteria. These nurse level data were analyzed to describe the personal characteristics of the RNs in the study. The mean age of the RNs was 41.76 years ($SD = 10.18$), mode was 45 years, and median age was 42 years. Ages ranged from 23 ($n = 5$) to 70 ($n = 1$), with 56% of the RNs above 40 years of age. Twenty-nine percent of RNs were between 30 and 40 years of age while 15% of RNs were 30 years of age or younger. The majority of the RNs were female (90%). The racial/ethnic background of RNs consisted of 39% Black, 30% Asian, 22% White, and 9% Hispanic.

Over half of the RNs (64%) had worked in the hospital longer than 5 years, with 48% of them working in the hospital more than 10 years. Twenty-five percent of the RNs had worked in the hospital from 2 to 5 years, and 6% from 1 to 2 years. Only 5% of the RNs had worked in the hospital for 1 year or less. Eighty-three percent of the RNs worked full-time and 17% worked part-time.

With regard to educational level, 88.5% of RNs had a bachelor's degree, 10% had a master's degree, 0.5% had a doctoral degree, and another 1% had an associate degree. Most of the RNs (98.4%) were staff nurses; 1.6% were nurse practitioners.

**Job satisfaction data**

Unit level data were used in this study. Job satisfaction scores for each subscale (i.e., task, RN–RN interactions, RN–MD interactions, decision-making, autonomy, professional status, and pay) were reported by NDNQI. The total job satisfaction score for each unit was derived using the average of the subscale scores. Eight (67%) of the units had moderate job satisfaction and four (33%) had low job satisfaction. None of the units had a high satisfaction. The mean job satisfaction score was 42.64 ($SD = 5.07$), with a median of 43.7 and a range of 33.67 to 48.93. The mean, standard deviation, and range for each subscale score are presented in Table 1.

The level of job satisfaction for each subscale was analyzed. The first subscale was task, which referred to activities that must be done as a regular part of the job (NDNQI, 2003). For the subscale task, 92% of the units had low satisfaction, 8% had moderate satisfaction, and none had high satisfaction.

The second job satisfaction subscale, RN–RN interactions, referred to formal and informal contact among RNs during working hours (NDNQI, 2003). Twenty-five percent of units had high satisfaction for RN–RN interactions, 75% had moderate satisfaction, and no unit had low satisfaction.

The third job satisfaction subscale was RN–MD interactions, which referred to formal and informal contact with physicians during working hours (NDNQI, 2003). Thirty-three percent of units had low satisfaction for RN–MD interactions and 67% had moderate satisfaction. No unit had high satisfaction. It was of interest that the reverse of the RN–MD interactions level of satisfaction was true for the RN–RN interactions.

**Table 1**

<table>
<thead>
<tr>
<th>Subscale</th>
<th>Mean</th>
<th>$SD$</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Task</td>
<td>32.00</td>
<td>6.8</td>
<td>23.56–46.57</td>
</tr>
<tr>
<td>RN–RN interactions</td>
<td>57.24</td>
<td>6.0</td>
<td>42.35–66.93</td>
</tr>
<tr>
<td>RN–MD interactions</td>
<td>41.55</td>
<td>8.2</td>
<td>28.03–53.48</td>
</tr>
<tr>
<td>Decision-making</td>
<td>37.53</td>
<td>6.7</td>
<td>23.57–47.90</td>
</tr>
<tr>
<td>Autonomy</td>
<td>37.62</td>
<td>6.7</td>
<td>27.64–49.41</td>
</tr>
<tr>
<td>Professional status</td>
<td>51.40</td>
<td>7.3</td>
<td>38.48–65.46</td>
</tr>
<tr>
<td>Pay</td>
<td>40.74</td>
<td>6.25</td>
<td>31.19–49.55</td>
</tr>
</tbody>
</table>

NDNQI–AIWS = National Database of Nursing Quality Indicators–Adapted Index of Work Satisfaction.
The fourth job satisfaction subscale was decision-making, which referred to management policies and practices that relate to decision-making (NDNQI, 2003). Half of the units (50%) had low satisfaction and the other half (50%) had moderate satisfaction. None of the units had high satisfaction.

The fifth job satisfaction subscale was autonomy, which was defined as the amount of independence, initiative, and freedom permitted or required for daily work activities (NDNQI, 2003). Two-thirds (67%) of the units had low satisfaction and one-third (33%) had moderate satisfaction. None of the units had high satisfaction.

The sixth job satisfaction subscale was professional status, which referred to the importance or significance of the job from the perspective of the RN and of others (NDNQI, 2003). A majority of the units (75%) had moderate satisfaction, 17% had low satisfaction, and 8% had high satisfaction.

The last job satisfaction subscale was pay, which referred to the cash remuneration and fringe benefits received for work performed (NDNQI, 2003). None of the units had high satisfaction. Half of the units (50%) had moderate satisfaction and the other half (50%) had low satisfaction. This result was similar to that of the decision-making subscale.

**Patient fall rate**
The mean patient fall rate for all units \((n = 12)\) was 4.26 \((SD = 2.5)\), the median was 4.22, and the mode was 2.48. The mean patient fall rate in each unit for the last quarter of the year is summarized in Table 2.

**Nurses’ job satisfaction and patient fall rate by type of unit**
This section describes the RN job satisfaction and patient fall rate data aggregated at the type of unit level: medical \((n = 6)\), surgical \((n = 3)\), and combined medical and surgical \((n = 3)\). RNs working in combined medical and surgical units had the highest job satisfaction score (45.9) followed by RNs working in the medical units (43.8). RNs working in the surgical units had the lowest job satisfaction score (37.1). The medical units had the highest patient fall rate (5.9) followed by the surgical units (3.3). Combined medical and surgical units had the lowest patient fall rate (2.0). It is of interest that the combined medical and surgical units had the highest RN job satisfaction score and the lowest patient fall rate. Medical units had a higher RN job satisfaction score than surgical units. However, medical units also had a higher patient fall rate (Table 3).

**Relationship between nurses’ job satisfaction and patient fall rate**
The previous section described RN job satisfaction and patient fall rate data aggregated at the type of unit level. This section describes data for all the adult medical, surgical, and combined medical and surgical units \((n = 12)\). Pearson’s correlation coefficient was used to determine the relationship between nurses’ job satisfaction and patient fall rate. The NDNQI–AIWS nurses’ overall job satisfaction score showed a moderate correlation with patient fall rate \((r = .46)\). However, this correlation was not significant at the critical value of \(p < .05\) (one-tailed).

Three subscales showed a weak correlation with patient fall rate: task \((r = .06)\), RN–RN interactions \((r = .11)\), and professional status \((r = .17)\). Three other subscale scores showed a moderate correlation with patient fall rate: pay \((r = .45)\), autonomy \((r = .46)\), and decision-making \((r = .57)\). RN–MD interactions

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**Table 2**

<table>
<thead>
<tr>
<th>Unit code</th>
<th>Patient fall rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>01</td>
<td>2.48</td>
</tr>
<tr>
<td>02</td>
<td>5.96</td>
</tr>
<tr>
<td>03</td>
<td>5.98</td>
</tr>
<tr>
<td>04</td>
<td>7.30</td>
</tr>
<tr>
<td>05</td>
<td>7.13</td>
</tr>
<tr>
<td>06</td>
<td>6.48</td>
</tr>
<tr>
<td>07</td>
<td>2.48</td>
</tr>
<tr>
<td>08</td>
<td>0.70</td>
</tr>
<tr>
<td>10</td>
<td>6.70</td>
</tr>
<tr>
<td>11</td>
<td>1.63</td>
</tr>
<tr>
<td>12</td>
<td>2.02</td>
</tr>
<tr>
<td>13</td>
<td>2.28</td>
</tr>
</tbody>
</table>
was the only subscale that showed a strong correlation with patient fall rate, and task was the only subscale with a negative \( r \) value. The Pearson \( r \) values were tested for significance and were found to be not significant at the critical value of .05 (one-tailed), except for RN–MD interactions and decision-making (Table 4).

In summary, the mean RN job satisfaction score was 42.64 (SD = 5.07) and the mean patient fall rate for all units was 4.26 (SD = 2.5). RN job satisfaction scores and each subscale score for all units were at the low and moderate satisfaction levels except for the RN–RN interactions \((n = 3)\) and professional status \((n = 1)\) subscales. RN–MD interactions \((r = .65)\) and decision-making \((r = .57)\) were the two subscales that showed a positive correlation with patient fall rate, significant at the critical value of .05 (one-tailed). The type of unit level data indicated that the combined medical and surgical units had the highest RN job satisfaction score and the lowest patient fall rate.

### DISCUSSION

Compared to the National Sample Survey of Registered Nurses data which is the most extensive source for RN demographic data in the United States, the RNs who participated in this study were younger, but a similar proportion of nurses were above age 40. Researchers have found mixed results on the relationship of age and job satisfaction. Cimeti, Gencalp, and Keskin (2003) found that older RNs were more satisfied than younger RNs, while Cellillie (2004) and Ruggiero (2005) did not support this conclusion.

The majority of the RNs were female (90%). There was a higher percentage of males in this study group (10%) than the national percentage. The racial/ethnic background of RN subjects consisted of 39% Black, 30% Asian, 22% White and 9% Hispanic, and did not reflect the national racial profile of 88.4% White, 4.6% Black, 3.3% Asian, 1.8% Hispanic, 0.4% American Indian, and 1.5% other. However, the racial/ethnic background of the RNs in this study reflected the racial/ethnic diversity of the city where the hospital was located.

Over half of the RNs (64%) had worked in the hospital for longer than 5 years, with 48% of them working more than 10 years. Only 11% of the RNs had worked in the hospital for 2 years or less.

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**Table 3**

<table>
<thead>
<tr>
<th>Satisfaction level</th>
<th>Type of unit</th>
<th>Mean satisfaction score</th>
<th>Patient fall rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low &lt; 40</td>
<td>Surgical ((n = 3))</td>
<td>37.1</td>
<td>3.3</td>
</tr>
<tr>
<td>Moderate 40–60</td>
<td>Medical ((n = 6))</td>
<td>43.8</td>
<td>5.9</td>
</tr>
<tr>
<td></td>
<td>Combined ((n = 3))</td>
<td>45.9</td>
<td>2.0</td>
</tr>
<tr>
<td>High &gt; 60</td>
<td></td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

NDNQI–AIWS = National Database of Nursing Quality Indicators–Adapted Index of Work Satisfaction.

**Table 4**

| Relationship of Nurses’ Job Satisfaction and Patient Fall Rate |
|---------------------|-----------------------|---------------------|
| \( r \)   | Significance |
|---------------------|-----------------------|---------------------|
| NDNQI–AIWS satisfaction score | .46                   | .07                 |
| Task                | -.06                  | .42                 |
| RN–RN interactions  | .11                   | .36                 |
| RN–MD interactions  | .65                   | .01*                |
| Decision-making     | .57                   | .03*                |
| Autonomy            | .46                   | .07                 |
| Professional status | .17                   | .30                 |
| Pay                 | .45                   | .07                 |

*\( p < .05. \) NDNQI–AIWS = National Database of Nursing Quality Indicators–Adapted Index of Work Satisfaction.
Although there were no comparison data for length of service in the hospital, these data suggested that the hospital was able to retain staff. Cimeti, Gencalp, and Kreskin (2003), and McNeese-Smith and Van Servellen (2000) found that RNs who had been working longer as a nurse had higher job satisfaction than RNs who had fewer years of service.

A large percentage of RNs (83%) worked full-time hours. Although there were no comparison data for hours worked, these data combined with the length of service in the hospital suggested that the hospital was able to retain staff. The high percentage of full-time RNs would be an advantage to the provision of continuity of care.

There was a greater number of RNs in this study with a bachelor’s degree (88.5%) compared to an estimated 34.2% of RNs in the nation with a bachelor’s degree as the highest level of educational preparation. The high number of RNs with a bachelor’s degree was the result of the hospital’s policy of hiring only RNs with a bachelor’s degree.

In summary, the personal characteristics of the RNs in this study were similar to the national demographic data only in terms of the number of RNs over the age of 40. The mean age, gender, racial/ethnic profile, and educational preparation of the RNs in the study were different from the national profile. There were no comparison data for length of service and hours worked in this study.

Job satisfaction

The nurses’ mean job satisfaction score was 42.64 (SD = 5.07), which is a moderate satisfaction level but at the lower end of the moderate category for job satisfaction. Aiken et al. (2001) reported that more than 40% of nurses working in US hospitals were dissatisfied.

While the level of job satisfaction was at the lower end of the moderate satisfaction category and was reflective of the general dissatisfaction of RNs nationwide, this finding was unexpected. The demographic data indicated that the majority of RNs had worked in the hospital for more than 10 years and were working full time. These indicated good nurse retention.

Medical and combined medical and surgical units had moderate satisfaction while surgical units had low satisfaction. The highest subscale score for all types of units were RN–RN interactions. This was important as relations with coworkers were cited by McNeese-Smith (1999) as particularly relevant to job satisfaction.

In summary, RNs in the study were moderately satisfied. Satisfaction levels differed by type of unit with RNs in the surgical units being the least satisfied, followed by RNs in the medical units. RNs in the combined medical and surgical units had the highest level of satisfaction. Subscale scores differed by type of unit as well.

Patient fall rate

The mean patient fall rate for this study was 4.26 (SD = 2.5), which is higher than the mean patient fall rate for NDNQI hospitals (3.73) (Dunton, Gajewski, Taunton, & Moore, 2004). Although the lack of reliability and validity of the Patient Falls Monthly Report form was of concern, it was possible that the higher mean patient fall rate for this study was due to better reporting in the study setting. Reporting of fall occurrences was a major performance initiative of the hospital. The clinical nurse managers routinely checked the Patient Falls Monthly Report form for completeness and accuracy.

The mean patient fall rate was lowest in the combined medical and surgical units (2.0) and highest in the medical units (5.9). The high mean patient fall rate in the medical units was similar to the findings of Dunton et al. (2004) that fall occurrences were most commonly observed in medical units, and least commonly observed in critical care units. On the other hand, Whitman et al. (2002) found that fall occurrences were highest in medical as well as surgical units.

Yauk et al. (2005) found that patients who fell while in the hospital were significantly older, had had a previous fall, had problems with bowel control, had some type of cognitive impairment or balance problem, or had need for assistance with ambulation. These conditions were common among patients in medical units in the study setting and may account for the high fall rate.
for the higher mean patient fall rate compared to the other types of unit. In addition, patients in medical units generally have a greater number of comorbidities and longer hospital length of stay.

Patients in combined medical and surgical units had the lowest patient fall rate. In general, the more acutely-ill patients of each service (i.e., medical or surgical) are admitted to the specific service rather than to combined medical and surgical units. This practice may account for the combined medical and surgical units having the lowest mean patient fall rate among types of unit.

In summary, better reporting of fall occurrences may account for the higher mean patient fall rate in this study compared to the NDNQI data. The higher mean patient fall rate in medical units compared to the other types of units may be due to the patient population in medical units. Unit level data would be more meaningful for the nurse manager of the individual unit rather than the hospital mean fall rate data because the latter would vary based on the range of fall rates in the combined units. The mean fall rate for the type of unit (i.e., medical or surgical) would give a better picture of the patient fall rate for a particular unit. This type of unit level data would be a better guide for nurse managers in planning nursing interventions.

**Job satisfaction and patient fall rate**

The RN–MD interactions and decision-making were the subscales that showed a positive correlation with patient fall rate that was significant at the critical value of .05 (one-tailed). This result was surprising as one would expect that as RN satisfaction with RN–MD interactions and decision-making increased, patient fall rate would decrease. This result did not support Sovie and Jawad’s (2001) finding that falls were reduced by increased collaboration between RNs and MDs. Some of the explanations provided for the lack of relationship between nurses’ job satisfaction and patient fall rate could explain this result. One was how fall rate was defined. Each patient fall was counted as an occurrence. Therefore, multiple falls by one patient would increase the patient fall rate. Another explanation was that while the nurse had made the decision that the patient was at risk for falls, interventions to prevent falls may have been implemented by the support staff. Lastly, RN–MD interactions may not be as intense for fall interventions compared to other patient outcomes such as nosocomial pressure ulcers and infections.

In summary, this study did not find a relationship between overall nurses’ job satisfaction and patient fall rate. RN–MD interactions and decision-making subscales were significantly positively correlated with patient fall rate ($p < .05$). Explanations were provided to explain the results. However, further study needs to be done to explicate the results. Tumulty (1990) did not find a relationship between job satisfaction and patient fall rate. Stratton and Sovie (2002) concluded in their study that nurse satisfaction affected patient outcomes. However, the relationship between nurse satisfaction and patient falls in their study was not clear.

**Study limitations**

There were several limitations to this study. First, reporting of the incidence of falls was based on the hospital’s incident reporting system and was subject to under-reporting. Second, there is no established reliability and validity for the Patient Falls Monthly Report form. Third, a convenience sample was used for the RN Satisfaction Survey. Although the RNs were assured of anonymity, there could be response bias and reluctance to answer honestly due to fear of reprisal. History could be a factor in the RNs’ responses as well. At the time of the survey, the hospital was going through a period of uncertainty in terms of hospital leadership and finance. The financial constraints may have affected the delivery of care at the unit level. Fourth, secondary data were used. Variables such as patient acuity, skill mix, length of stay, occupancy rate, and nurse to patient ratio were not controlled. Fifth, the demographic data were somewhat different from the national profile as reported by the National Sample Survey of Registered Nurses (2005). Therefore, generalizability of this study would be limited to units with similar demographic data. Finally, the data came from adult
medical and surgical units, and are not generalizable beyond these units.

The study examined the relationship between nurses’ job satisfaction and patient fall rate using unit level data. The results are meaningful for the nurse leaders of units because the data are unit-specific. Study results can be shared with nurse leaders to recommend changes in practice specific to the unit. In addition, tracking the relationship between nurses’ job satisfaction and patient fall rate can be used as a performance improvement initiative as recommended by the JCAHO. Improving nurses’ job satisfaction and decreasing patient fall rate would have an impact on the cost and quality of patient care.

The nurse manager of the unit has an important role in the accuracy of data collection. A less punitive approach to reporting adverse events would improve reporting. The need to establish reliability and validity assessment of the Patient Falls Monthly Report form is indicated.

**Recommendations for future research**

Future research with a study design that controls for the characteristics of the nurse, patient population and patient unit might provide a better explanation of the relationship between nurses’ job satisfaction and patient outcomes.

Controlling for confounding variables related to the organization will minimize the effect of extraneous factors and maximize the effect of more influencing factors. Matching the nurse with patient outcome would make the outcome attributable to the nurse. A study of the reliability and validity of the Patient Falls Monthly Report would more accurately represent the outcome variable.

Future research on identifying nurse-sensitive outcomes is needed. A scoring system can be established where outcomes more sensitive to nursing intervention are identified and graded according to sensitivity. This system would help researchers prioritize which patient outcomes will be studied.

This is the first study measuring the relationship between nurses’ job satisfaction and patient fall rate at the unit level. The lack of significant finding may be due to confounding variables in the acute care setting such as organizational, personal, and work environment variables that were not controlled in the study. Efforts to control variables such as patient acuity, skill mix, and length of stay, occupancy rate, and nurse to patient ratio in future research is recommended.

The results of this study will enable nurse managers and others to have a better understanding of nurse job satisfaction and patient outcome at the unit level. The organization can use the results to look at trends between units as a tool to make global changes in the organization. The findings of the study add to the general body of knowledge related to nurses’ job satisfaction and patient outcome.

**REFERENCES**


Tumulty, B. G. (1990). *The relationship between the head nurse role characteristics, job satisfaction, and client outcomes*. The University of Texas at Austin, UMI No. 9116997.

